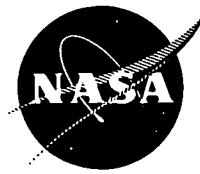


NASA TECH BRIEF

Lewis Research Center



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Handbook on Thermophysical Properties of Oxygen

Cryogenic fluids have been used extensively in the space program. Many of these fluids are also being used or considered for use in ground transportation systems, power generation systems and major industrial applications. NASA's Aerospace Safety Research and Data Institute, located at the NASA Lewis Research Center, collects, evaluates, and organizes safety-related information on cryogenic fluids for use by NASA and others. As a part of this effort, a handbook on the thermophysical properties of oxygen has been compiled for NASA by the Cryogenic Data Center of the National Bureau of Standards.

This handbook covers thermodynamic functions, physical properties and heat transfer data for oxygen. The properties reviewed include accommodation coefficient, dielectric constant, enthalpy, entropy, heat capacity, phase diagram, Prandtl number, surface tension, vapor pressure, viscosity, and over forty other properties. The handbook addresses primarily the low temperature regime, i.e., the liquid and dense gas states, but also includes some data above room temperature. The data are presented descriptively, graphically and in tables. Also included is a bibliography of over 1500 reference sources for the data compiled.

Notes:

1. The data in this handbook are detailed beyond that previously available; therefore, this handbook is useful to both the scientific and the technical communities.
2. Copies of this handbook may be obtained from:

National Technical Information Service
Springfield, Virginia 22151
Single document price \$6.00
(or microfiche \$0.95)

Reference: NASA SP-3071 (N73-13952), ASRDI Oxygen Technology Survey, Volume I: Thermo-physical Properties

Technical questions may be directed to:
Technology Utilization Officer
Lewis Research Center
21000 Brookpark Road
Cleveland, Ohio 44135

Reference: B73-10187

4. A related handbook on oxygen is also available from:
National Technical Information Service
Springfield, Virginia 22151
Single document price \$3.95
(or microfiche \$0.95)

Reference: NASA SP-3072 (N73-15155), ASRDI Oxygen Technology Survey, Volume II: Cleaning Requirements, Procedures, and Verification Techniques

Source: H.M. Roder and L.A. Weber
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